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Implementation of SPC Strategic Plan 2022–2031 through SPC FAME Business Plan 2022–2027

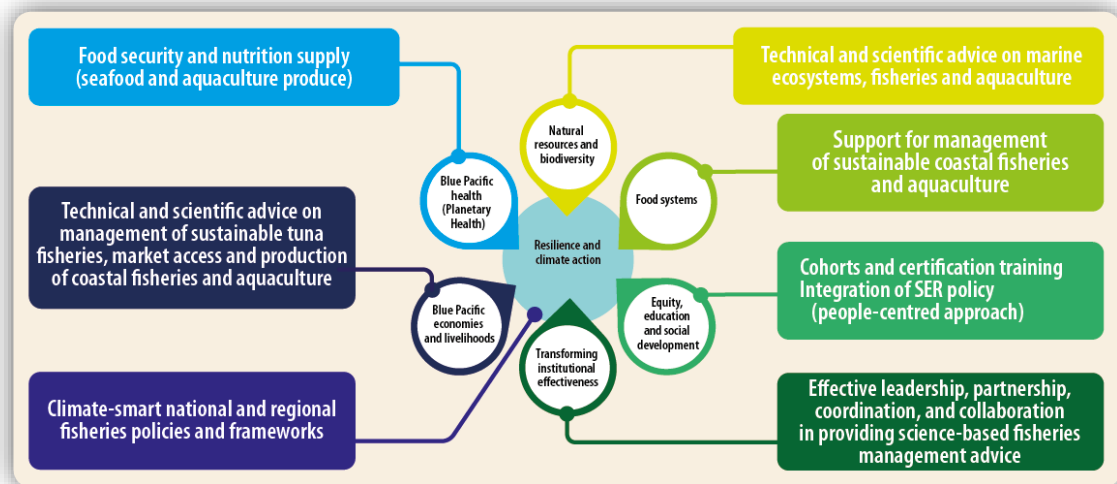
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Introduction

1. SPC Fisheries, Aquaculture and Marine Ecosystems (FAME) division's business plan 2022-2027 reflects the strategic direction provided by our members through their priorities expressed through regional meetings and in regional frameworks, *Future of fisheries: A regional roadmap for sustainable Pacific fisheries* and *New song for coastal fisheries – pathway to change: The Noumea strategy*.
2. The SPC FAME Business Plan is anchored under the SPC Strategic Plan 2022–2031 and plays a vital role in its implementation.



3. This paper discusses SPC FAME's role in the implementation of the seven Key Focus Areas (KFAs) of the SPC Strategic Plan 2022 – 2031, as shown in figure 1 below:



How FAME is implementing SPC Strategic Plan 2022–2031

4. SPC FAME's Business Plan aligns with the SPC's vision of a resilient Pacific region that promotes peace, harmony, and prosperity for all its people and communities. As wayfinders, the SPC recognises the significance of the Pacific Ocean's culture, environment, and resources. Thus, we acknowledge our role as stewards of the Pacific Ocean and are responsible for taking collective action to address the urgent threat of climate change.
5. The business plan includes objectives and initiatives that promote sustainable economic growth while ensuring the preservation of the Pacific region's natural resources and biodiversity. It also includes efforts to enhance the resilience of communities to natural disasters, climate change, and other challenges.
6. SPC FAME Business Plan's objectives align well with the SPC's Strategic Plan's key focus areas and provide a clear direction for the division's efforts to support sustainable fisheries and aquaculture in the Pacific region. The objectives are:
 - **Objective 1:** Enhance strategic oversights, efficient operational systems, partnership, and coordination within SPC divisions, members and partners.
 - **Objective 2:** Provide and facilitate access to and interpretation of information and knowledge on fisheries, aquaculture and marine ecosystems.
 - **Objective 3:** Enhance data collection and provide data management services for fisheries, aquaculture, and marine ecosystem.
 - **Objective 4:** Provide scientific research, analysis and advice for evidence-based fisheries management.
 - **Objective 5:** Strengthen the contributions of the Pacific Island aquaculture and fisheries to sustainable, biosecure, equitable and secure food systems.
 - **Objective 6:** Identify diverse and sustainable livelihood options for SPC member PICTs.
 - **Objective 7:** Support the development of capacity and enhance capability in fisheries and aquaculture among PICTs.
7. SPC FAME is implementing the SPC strategic plan through its two main programmes: **Coastal Fisheries and Aquaculture Programme** and **Oceanic Fisheries Programme**, supported by the **Director's Office** (*Planning, Monitoring, Evaluation and Learning (PMEL)* and *Communication and Resource Mobilisation, Fisheries Information and Knowledge Section, Finance Section*).
 - The **Coastal Fisheries and Aquaculture Programme (CFAP)** provides science and technical support to Pacific Island Country and Territory (PICT) governments and administrations to enhance the management of their coastal fisheries, and the sustainable development of aquaculture and nearshore livelihoods.
 - The **Oceanic Fisheries Programme (OFP)** provides scientific advice on the status of stocks, management options and impacts of fisheries and the environment – including climate change - on both target and non-target species and the pelagic ecosystem, conducts research on the biology and ecology of tuna and tuna-like species, provides technical support in the collection and management of data from fisheries, and provides capacity building opportunities to members across these fields of work.

OFP delivers its work to members both at the national level and through the various regional and sub-regional fisheries organisations of which they are members, including the Western and Central Pacific Fisheries Commission (WCPFC), the Pacific Islands Forum Fisheries Agency (FFA), the Parties to the Nauru Agreement (PNA) and the South Pacific Group (SPG). In doing so, there is extensive collaboration with the Secretariats of these organisations, as well as with government fishery agencies, many NGOs and universities.

8. FAME’s role in implementing SPC’s strategic plan 2022-2031 under each key focus areas (KFAs)

FAME Business Plan objectives: 2, 4, 6	
KFA 1: Resilience and Climate Action	
Implementing KFAs through	Work areas under each pathway
<p><i>Climate-smart national and regional fisheries policies and frameworks</i></p>	<p><i>Innovation and research</i></p> <ul style="list-style-type: none"> Identify and foster aquaculture that is “climate-smart”, by virtue of either being resilient to climate change or by helping to address climate change (such as by carbon sequestration). Modelling the impacts of environment variation, including climate change, on tuna and the pelagic ecosystem using SEAPODYM model Enhanced climate change monitoring. Building upon the SEAPODYM enhancements, there is a need to develop indicators of climate change that allow us to identify which pathway the Pacific is on toward identified potential climate-impacted futures.
FAME Business Plan objectives: 2, 3, 4, 5, 6	
KFA 2: Natural Resources and Biodiversity	
<p><i>Technical and scientific advice on marine ecosystems, fisheries and aquaculture</i></p>	<p><i>Data, statistics and knowledge</i></p> <ul style="list-style-type: none"> Small-scale fisheries catch data collection through the use of photos and tablet applications (TAILS and Ikasavea). Collaborating with OFP to automate the processing of catch photos into TAILS/TUFMAN2, employing technology developed for Ikasavea. <p><i>Innovation and research</i></p> <ul style="list-style-type: none"> Using artificial intelligence (AI) and machine learning tools to analyse photos of fishes and invertebrates on a measuring board or on a mat to semi-automate data entry by predicting species, reading scales, and calibrating images for length measurements. <p><i>Digitalisation and technology</i></p> <ul style="list-style-type: none"> The current knowledge of the biology, exports and regulations of targeted species is being collated by experts and will be presented in an online database that is in development, along with tools derived from these parameters, such as, weight and length conversions between wet and

processed product; suggested minimum size derived from species traits; etc. The online module will be expanded for biological sampling data.

Innovation and research

- To improve the mapping and monitoring of the benthic habitat in relation to coastal resources, large photographic underwater surveys have been conducted to complement classification from satellite imagery. AI is being used for computer assisted image classification of photo-quadrat images. The models will continue to be reviewed and improved.
- Providing technical support to improve aquaculture infrastructure.
- Promote innovation and diversification in members' aquaculture production sectors by facilitating the acquisition of appropriate new technology and investments.
- Building the science foundations for a core standard, Pacific approach to sustainable, evidence-based coastal fisheries management.
- Fisheries genomics and molecular ecology. FEMA has increased its in-house capacity in the field of fisheries genetics, as well as strengthened its partnerships with key expertise within the Pacific region to support genetic work on tuna stock structure and fish ageing.
- Investigating wahoo and mahi mahi ecology, as key species of importance to nearshore fisheries and critical to the success of the nearshore anchored FAD fisheries in the coming decades. Currently, there is limited information on their biology and ecology in the Western and Central Pacific.

Data, statistics and knowledge

- The trials of underwater video, collected by remotely operated vehicle (ROV), for deeper sea cucumber species stock assessments are underway, assisted by computer vision analysis of the videos.
- Supporting members to improve aquatic biosecurity disease diagnosis, surveillance and reporting practices; strengthening national capacities of quarantine by working with national biosecurity and quarantine agencies to include live aquatic organisms; and supporting members to improve national infrastructure and operations for quarantine of live aquatic organisms.
- Provide support to members on web-based data applications to strengthen on-farm data collection and management.
- Utilising new tools (e-tools) and approaches for online data entry; standardised data collection; data and information quality control; and analysis and dissemination for use in management decision-making.
- Working with members to assess and manage finfish and invertebrate resources and their associated habitats to inform management through resource assessments, data analysis, interpretation, training, mentoring and advice.

- Capacity enhancement support to members to conduct fisheries independent (in water surveys) and fisheries dependent (market and creel surveys) assessments, through developing online learning software and conducting virtual training for members' fisheries staff.
- Continue developing a series of “marine resource status” reports, similar to the [“Trochus in the Pacific Islands: a review of the fisheries, management and trade”](#) and [“Aquarium products in the Pacific Islands: a review of the fisheries, management and trade”](#), that can be maintained as easily-updatable web-based reports.
- The Pacific Tuna Tagging Programme, with annual tag release cruises and the regional tag recovery effort now funded substantially through the WCPFC.
- Trophic ecology research voyages and associated laboratory analyses.
- The application of new technology to the monitoring of fisheries. FEMA assists members in the development and implementation of video-based electronic tools for monitoring catch and effort by longliners, as well as rolling out electronic reporting tools, such as the longline e-log *OnBoard*, port sampling app *OnShore* and the *Tails* app for collecting small-scale fisheries data.
- Enhancements and support for *TUFMAN 2*, which enable member countries to manage/report on their integrated tuna fishery data. The system now integrates all major tuna-fishery data types (including logbook, VMS, observer, port sampling, unloadings and cannery receipt data).
- Enhancing E-reporting (ER) tools developed by SPC in response to member country requests. The Data Management section has developed several E-reporting tools in response to member country requests, including the longline e-log *OnBoard*, *TAILS* app for collecting small-scale fisheries data, longline observer data at sea app (*OLLO*), and the longline port sampling app *OnShore*.
- Data visualisation, analysis and reporting including alerts is an area with considerable potential for tuna fishery data in the near future, with the objective of providing ‘business intelligence’ systems to support senior managers through app-based access to relevant data dashboards.
- Development of new stock assessment tools to ensure that regional WCPO assessments remain at the forefront of international best practice. Consolidation of the MULTIFAN-CL software will continue, while the SAM section is also engaging with international partners to ensure plans for the next generation of stock assessment software will be appropriate to meet the specific needs and data types of the WCPO region.

Capability and influence

- Strengthening members' capacity and tackling technical constraints in feed, seed and broodstock management, including further developing the

	<p>‘cluster approach’ to support small operators to better manage residual COVID-related impacts on aquaculture.</p> <ul style="list-style-type: none"> • Supporting small- to medium-sized private sector development through capacity-building and technology transfer to increase efficiency of enterprises and up-scale their production. • Improving support for remote networking and collaboration, technology, research, skills transfer and technical advice. • Strengthening business skills, knowledge and information on aquaculture operations through mentoring and training. • Capacity enhancement support to members to conduct fisheries independent (in water surveys) and fisheries dependent (market and creel surveys) assessments, through developing online learning software and conducting virtual training for members’ fisheries staff. <p>Policy to action</p> <ul style="list-style-type: none"> • Developing online tools, training and support for improved governance in terms of policies, legislation, development and management plans. • Expand the current ‘cluster approach’ to include supporting local aquaculture industry associations reach a critical mass through better information exchange, more efficient procurements, and coordinated marketing. • Support officials from PICTs to review the regional frameworks - “New Song for Coastal Fisheries – Pathways to Change: The Noumea Strategy” and the coastal fisheries component of the “Future of Fisheries: Regional Roadmap for Sustainable Pacific Fisheries”. Including review and update the indicators for the Coastal Fisheries Report Card • Providing on-going support for reviewing and advising on CBFM programmes and projects across the region, including providing oversight of the implementation of the PEUMP Programme LMMA Network International CBFM activities in Melanesia.
<p>FAME Business Plan objectives: 2, 3, 4, 5, 6, KFA 3: Food systems</p>	
<p>Support for management of sustainable coastal fisheries and aquaculture</p>	<p>Data, statistics and knowledge</p> <ul style="list-style-type: none"> • Small-scale fisheries catch data collection through the use of photos and tablet applications (TAILS and Ikasavea). Collaborating with OFP to automate the processing of catch photos into TAILS/TUFMAN2, employing technology developed for Ikasavea. • PICT specific fisheries and aquaculture related documents continue to be scanned and remote support provided to several member-managed knowledge bases to promote the accessibility of scientific knowledge to national fisheries staff.

- A Monitoring, Control and Surveillance (MCS) online module to record infringements will be expanded to fit the needs of various PICTs. With the continued increase in coastal fisheries activities in the region, the ongoing development of this module is a high priority.
- Tools and methodologies to assist with tracing commercial products are being explored to improve the monitoring of exploitation levels and to facilitate enforcement of coastal fisheries-related regulations at a local scale. Processed sea cucumber species images are being collated and will be used to produce training/support tools for enforcement officers in identifying the processed species/products and automate data collection and measurements.
- Regional stock assessments of tuna, billfish, and sharks to inform scientific advice on current stock status and fishery sustainability within the western and central Pacific Ocean. These assessments also provide the basis of analyses that examine the potential effectiveness of alternative regional management approaches to achieve fishery objectives of profitability and sustainability.

Innovation and research

- Using artificial intelligence (AI) and machine learning tools to analyse photos of fishes and invertebrates on a measuring board or on a mat to semi-automate data entry by predicting species, reading scales, and calibrating images for length measurements.
- Target future work to support hatcheries for key commodities and low cost/low technology farming systems for livelihood aquaculture.
- Developing and maintaining an anchored-FAD web portal to improve members' access to up-to-date anchored FAD design, development, deployment, monitoring and management information, tools, and training materials. Working in close partnership with FAME OFF, SPC GEM and PCCOS on developing Highly Instrumented Fish Aggregating Devices (HI-FAD; see [HoF14 Information Paper 5](#)).
- Explore the advantages of and trial emerging technology in monitoring and detecting coastal fisheries and aquaculture offences.
- Harvest strategy work for key tuna stocks and fisheries. Following adoption of the harvest strategy approach by WCPFC members and a specific harvest strategy for WCPO skipjack in 2022, the SAM section continues to develop the modelling and simulation frameworks to undertake this work for the four key tuna stocks.

Policy to action

- Enhancing the management of aquatic biosecurity risks, including: supporting the application of the Regional Framework on Aquatic Biosecurity; supporting members to strengthen risk analysis capacity and assess their aquatic biosecurity needs and practices.

	<ul style="list-style-type: none"> • Enhancing regional and national capacity in aquaculture policy, planning, MCS and legislation to facilitate the establishment of clear priorities for aquaculture to meet current and future needs. • Improve engagement in aquaculture in the area of monitoring, control and surveillance, as well as enhancing capacity in occupational health and safety in aquaculture farming operations. • National-level advice based upon scientific analyses to address specific national requests and issues. These activities include the development of new 'Issue-Specific National Reports' to address emerging issues of national importance, on-going bio-economic evaluations of national fisheries undertaken in partnership with FFA, assistance in development of Tuna Management Plans and Shark National Plans of Action, and provision of analyses in support of regional fisheries management. • Research and analysis on Fish Aggregation Devices (FADs) is ongoing to increase our understanding of this fishing approach and support improved management and decision-making on FAD related issues. Our FAD related work continues to grow due to the increased regional and global interest in the large-scale use of FADs in tuna fisheries. This year's top priority is the roll out of the WCPFC project to test Non-entangling and Biodegradable FADs (bioFADs) in the western and central Pacific purse seine tuna fishery.
<p>FAME Business Plan objectives: 2, 4, 5, 7</p>	
<p>KFA 4: Equity, education and social development</p>	
<p><i>Cohorts and certification training. Integration of SER policy (people centred approach)</i></p>	<p><i>Capability and influence</i></p> <ul style="list-style-type: none"> • Support to PICTs through developing formal online training courses; providing training on market/landings/socio-economic/community surveys using Ikasavea and web modules; training on the Monitoring, Control and Surveillance module; and on the Reef Fisheries Integrated Database (RFID) and other web-based modules. • Expanding current MCS training, capacity building and support activities at the national level to enable national fisheries MCS officers to train and support their counterparts in communities located on outer islands or in remote locations. • Undertake a review of the Certificate IV in Coastal Fisheries and Aquaculture Compliance course (including improving linkages with the FFA Oceanic MCS Cert IV); run Cohort 6 of the Certificate IV MCS course (EOI to be advertised in March 2023); and compile the learning materials for the new Professional Certificate (equivalent Cert III) Community Compliance course for in-PICT training institutions to begin delivering in 2023. <p><i>Data, statistics and knowledge</i></p> <ul style="list-style-type: none"> • Responding to member requests for country specific database support and training, including addressing legacy databases and migrating and decommissioning old databases

	<ul style="list-style-type: none"> • Online training tools (data acquisition, entry and analysis) and access to the latest information continues to be developed on a fishery-by-fishery basis, to provide web-based self-service tools for various stakeholders. <p>Policy to action</p> <ul style="list-style-type: none"> • Strengthen gender and social inclusion assessments to better understand family farming, especially the roles of women and youth in aquaculture. • Supporting members to strengthen coastal fisheries and aquaculture management arrangements, through support on reviewing and drafting policies, management plans, legislation and regulations, and training national fisheries officers and communities in Monitoring, Control, Surveillance and Enforcement. • Supporting and further developing the Community-Based Fisheries Dialogue (CBFD) to give the Civil Society Organisations and other Non-State Actors sector an opportunity to share experiences and lessons from community-based initiatives and provide information and advice on key CBFM needs and issues, through the RTMCFA to the Heads of Fisheries, on priority issues associated with the sustainable use of coastal fisheries resources (see Working Paper 8). • Providing regular training and mentoring on legislative drafting for coastal fisheries and aquaculture, aimed at members’ fisheries policy and legal officers. Review the first <i>Legislative drafting online course in coastal fisheries</i>, developed and delivered in collaboration with the University of California, Hastings College of the Law, and deliver another online course. • OFP continues to build national science capacity building through the Pacific Island Fisheries Professional programme. • PIRFO, the Pacific Islands Regional Fisheries Observer programme, coordinated collaboratively with FFA to provide training and accreditation of tuna fisheries observers in the region.
<p>FAME Business Plan objectives: 2, 3, 4, 5, 6</p> <p>KFA 5: Sustainable economies and livelihoods</p>	
<p>Technical and scientific advice on management of sustainable tuna fisheries, market access and production of coastal fisheries and aquaculture</p>	<p>Policy to action</p> <ul style="list-style-type: none"> • Strengthening economic and market assessments for viable aquaculture commodities and products, including identifying and facilitating the shift to domestic markets to compensate for the residual COVID-19 trade impacts. <p>Data, statistics and knowledge</p> <ul style="list-style-type: none"> • Tools and methodologies to assist with tracing commercial products are being explored to improve the monitoring of exploitation levels and to facilitate enforcement of coastal fisheries-related regulations at a local scale. • Processed sea cucumber species images are being collated and will be used to produce training/support tools for enforcement officers in

	<p>identifying the processed species/products and automate data collection and measurements.</p> <ul style="list-style-type: none"> Monitoring the impacts of tuna fisheries on bycatch and the pelagic ecosystem more broadly. FEMA conducts analyses of observer data to produce estimates of important bycatch species, including species of special interest and species of potential importance for food security, and report these periodically as regional- and national-level analyses. This information is increasingly important for the certification of fisheries by bodies such as the Marine Stewardship Council.
<p>FAME Business Plan objectives: 3, 4, 5, 6</p> <p>KFA 6: Planetary health</p>	
<p><i>Food security and nutrition supply (seafood and aquaculture produce)</i></p>	<p><i>Innovation and research</i></p> <ul style="list-style-type: none"> Supporting members with sustainable livelihoods opportunities, through strengthening national anchored FAD programmes; providing training workshops for key nearshore fisheries; capacity enhancement and support in safe, sustainable fishing methods; exploring alternative target species; and developing non-extractive uses of coastal fisheries resources. Investigating the impact of methyl mercury and micro/nano-plastic contamination of tuna and other fish stocks, including the health implications for Pacific Island human populations. Micro and nano-plastic contamination of fish and the oceans generally is emerging as a threat for fisheries and human health
<p>FAME Business Plan objectives: 1, 2, 3, 4, 7</p> <p>KFA 7: Transforming institutional effectiveness</p>	
<p><i>Effective leadership, partnership, coordination, and collaboration in providing science-based fisheries management advice</i></p>	<p><i>Capability and influence</i></p> <ul style="list-style-type: none"> Supporting and further developing the Community-Based Fisheries Dialogue (CBFD) to give the Civil Society Organisations and other Non-State Actors sector an opportunity to share experiences and lessons from community-based initiatives and provide information and advice on key CBFM needs and issues, through the RTMCFA to the Heads of Fisheries, on priority issues associated with the sustainable use of coastal fisheries resources (see HOF15Working Paper 8). Expanding the coordination, collaboration and support to members, as well as local and regional partners in implementing effective CBFM scaling-up approaches within national contexts in line with the “Pacific Framework for Action on Scaling-up Community-based Fisheries Management”. Launching and maintaining a FAME web page to serve as an inclusive e-platform for CBFM in the region. <p><i>Data, statistics and knowledge</i></p> <ul style="list-style-type: none"> Data Management support to the WCPFC, which also covers the direct support to member countries in satisfying their WCPFC reporting

obligations, but also building capacity (through mechanisms such as the Regional Tuna Data Workshop) to enhance the ability of member countries to respond directly to WCPFC reporting obligations without SPC assistance.

- Acquisition of E-reporting (ER) and E-monitoring (EM) data from third-party systems, covers situations where member countries choose to adopt ER and EM systems developed and maintained by third-party technical service providers.
- Data standards, monitoring and auditing for regional tuna fisheries continue to be enhanced and now extends beyond the requirements for science to include the requirements for, for instance, Monitoring, Control and Surveillance (MCS) and E-monitoring process standards.
- Independent validation of at-sea longline transshipments has been identified as a major data gap and SPC will continue to collaboratively advance this work with interested members, regional agencies and through the WCPFC transshipment IWG, providing information and technical advice to establish an adequate, independent data collection system for at-sea longline transshipments.
- Cannery receipt data represents a potentially important source of information to verify estimates of purse seine tuna species catch determined from observer data (which is based on data with very low coverage). This activity will be supported by a new initiative in 2023 through a dedicated WCPFC SC project.